

REMARKS

Claims 36 and 42-44 are pending in the application. Reconsideration of the application in view of the remarks to follow is requested.

Claims 36 and 42-44 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Yang et al. (6,040,238) in view of Ilg et al. (6,130,145).

Regarding the rejection against claim 36 based on Yang in view of Ilg, such claim recites a doped metal-silicide comprising a Group III dopant or a Group V dopant provided to a concentration of at least about 1×10^{18} ions/cm³. The Examiner correctly states that Yang fails to teach doping the silicide, and relies on the teachings of Ilg to supply the deficiency in teachings. The Examiner provides a motivational rationale for the combination of art stated as, it would be an obvious modification to modify the structure taught by Yang to include a metal-silicide layer with a concentration of dopants of at least 1×10^{18} ions/cm in a gate structure as clearly suggested by Ilg, **in order to lower the resistance of the metal-silicide layer**. The combination of art fails to teach or suggest doping a silicide layer to lower the resistance of same, and therefore, the stated motivational rationale does not exist, and the obviousness rejection based on such non-existent rationale fails.

The Examiner is respectfully reminded that “[a] prior patent must be considered in its entirety, *i.e.*, as a *whole*, including portions that would lead away from the invention.” *Panduit Corp. v. Dennison Manufacturing Co.*, 810 F.2d 1561, 1 USPQ2d 1593, 1597 (Fed. Cir. 1987) (citations omitted). Regarding

Yang, the Examiner correctly states that Yang fails to teach doping the metal-silicide layer (pg. 3 of paper no. 19). Ilg teaches that a problem of the prior art exists and states such problem as, "metal silicide over heavily doped poly exhibits stoichiometric control problems, which are expressed in the form of a metallic-rich interface. A metallic-rich interface is undesirable since it is not resistant to subsequent thermal processes. As a result, the interface gets oxidized. Oxidation causes surface roughness and, in some cases, delamination of the silicide film" (col. 1, Ins. 21-28). To solve this problem, Ilg teaches providing "dopants in the metal silicide layer reduces problems associated with metal rich inte[r]face" (sic) (col. 1, Ins. 49-52). That is, Ilg teaches adding dopants to the metal silicide to solve the problems of surface roughness and delamination.

The teaching of Ilg on which the Examiner relies, column 4, lines 30-46 (pg. 3 of paper no. 19) is ambiguous. "Insitu doping the metal silicide potentially increases the tendency that it will be deposited in its amorphous state. Depositing the metal silicide in its amorphous state increases the grain size of the film, thereby lowering its resistance" (column 4, lines 30-46). It is unclear whether the insitu process, the doping or the combination of the two potentially increases the tendency that the silicide will be deposited in its amorphous state. Consequently, in no fair or reasonable interpretation can it be stated that this teaching of Ilg (column 4, lines 30-46) teaches or suggests doping the silicide to lower the resistance as stated by the Examiner. Moreover, taken with the **xplicit** teaching that doping the silicide layer solves surface roughness and

delamination problems, and considering the teachings of Ilg as a whole pursuant to the above authority, no reasonable or fair statement can be presented regarding doping the silicide in relation to lowering the resistance. Therefore, since the Examiner's stated motivational rationale for modifying Yang by teachings of Ilg that can not reasonably be stated to exist, the obviousness rejection based on such motivational rationale must fail. Therefore, the obviousness rejection against claim 36 should be withdrawn and claim 36 allowed.

Claims 42-44 depend from independent claim 36, and therefore, are allowable for the reasons discussed above with respect to the independent claim, as well as for their own recited features which are not shown or taught by the art of record.


Further, Applicant herewith submits duplicate copies of the Information Disclosure Statement, the Supplemental Information Disclosure Statement and Form PTO-1449s filed in this application on June 4, 2001 and December 27, 2002, respectively. No initialed copies of the PTO-1449s have been received back from the Examiner. To the extent that the submitted references listed on the Form PTO-1449 have not already been considered, and the Form PTO-1449s have not been initialed with a copy being returned to Applicant, such examination and initialing are requested at this time, as well as return of a copy of the initialed Form PTO-1449s to the undersigned. Regarding the 1449 filed on June 4, 2001, the Examiner only initialed the U.S. patent and not the article references. Regarding the 1449 filed on December 27, 2002, the Examiner has objected to this 1449 saying that it does not comply with 37 C.F.R. 1.98(a)(1)

which is incorrect. Copies of the articles are again provided for the Examiner's convenience.

This application is now believed to be in immediate condition for allowance, and action to that end is respectfully requested. If the Examiner's next anticipated action is to be anything other than a Notice of Allowance, the undersigned respectfully requests a telephone interview prior to issuance of any such subsequent action.

Respectfully submitted,

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